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Book Review: Economics of Environmental Policy - A. Myrick Freeman, III, Robert Haveman, and Allen V. Kneese

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years to create the ultimate in statistical analysis for this important legume. In faithful detail the findings were recorded in a master volume. An elaborate "dynamic" supply and demand model is set forth, and thereafter separate incursions into policy analysis and regional export demand for American soybeans and soybean products. All these come after an introductory four-chapter résumé of the domestic and world market.

A penalty of esoteric investigation is to circumscribe both audience and criticism. How can the coefficients in a 13-equation demand model for soybeans be appraised? This display of analytic virtuosity dare not be prejudicial. The two choices are 1) to replicate or 2) to resort to common-sense judgment. The former seldom is feasible and the latter denies the mission of the analysis. If common sense will suffice, why tool up a project?

The authors anticipated such a dilemma and took precautionary steps. With commendable candor, they acknowledge that to report only "best results" without admitting "experimental failures" can mislead; thereupon they describe briefly their "other results and alternative models" (p. 163).

As a second gesture the authors make only modest claims for their results, such as that "... the structural estimates display signs which are consistent with theoretical expectations ... [and] reasonable in magnitude ..." (p. 85). Or again, "Generally speaking, the estimates are reasonable in sign and magnitude" (p. 95). The modesty stupefies all criticism except one piercing question that can be asked of so many statistical studies: are correctness of sign and "reasonable" coefficients the most that is to be obtained from such statistical prolixity?

This is not to challenge the techniques nor, generally, the outcome. The models were set up with meticulous care, and the elaborate treatment of the effect of federal acreage and price programs is a laudable improvement over many other commodity analyses that either ignore programs or handle them crudely.

The formal statistical analysis must be graded high, and the exposition about oil versus meal markets set against world geography deserves an appreciative audience.

Three serious flaws detract, however. In contrast with the statistical demonstration it precedes, the introductory chapters are offensively primer-level. "Soybean output depends on yields as well as upon the acreage harvested" (p. 33) is not atypical. Second, in the narrative about soybean markets no suspicion is vouchsafed as to what competitive model they conform to. Perhaps those markets are indeed the last island of pure competition; if so, allusion should be made. Otherwise, the skeptic can wonder if the silence was protective.

Lastly, why must a book published in 1972 have such old data? That the analyses ended in 1966 is perhaps understandable, but forgiveness comes harder for ending descriptive data in 1969. The irony may fit contemporary contradictions: the computer turns out data in seconds; converting to print requires years. Perhaps the moral is reassurance that man's mechanical inventions will neither beatify nor replace him.

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Not long ago the economics of the environment consisted of a series of theoretical observations that: 1) discharging pollution represented a classic externality, b) we should internalize the effect via taxes or subsidies (effluent charges in the jargon), and 3) as soon as some good engineers get us the production functions, as soon as physicians get us health damage functions, as soon as politicians get us social welfare functions for the aesthetics of a clean environment, etc., we will show them how to equate marginal cost with marginal benefit. The literature has now burgeoned with the proceedings of three major conferences held on the subject and numerous articles and books. Fortunately, a number of economists have taken the trouble to learn the underlying physics, chemistry, hydrology, engineering, and physiology needed to explore the nature of the "noneconomic" relationships in order to pro-
vide structure for the problem. Economists who scoff at the "noneyconomic" work in this area haven’t yet figured out where the action is, in terms of theory, applications, or policy.

A major contribution to the literature, *Economics and the environment, a materials balance approach* (by Kneese, Ayres and d’Arge) in 1970 provided the foundation for the present book as well as for much of the other work on the economics of the environment. Starting from the principle of conservation of matter, they analyzed the flows of material and energy which are part of our economic activity. Their approach, and the empirical content, are impressive in isolating the nature of our environmental problems, in looking toward solutions, and in viewing the implications of economic growth. Eugene Seskin and I have commented on this book in detail (*Journal of the American Institute of Planning, 1971*), but I can’t help noting my admiration for the power of the analysis and the light it sheds on a vast range of problems.

The book by Freeman, Haveman and Kneese under review here is a synthesis of much of the work on the economics of the environment. It is extremely well written; indeed, at times difficult questions are treated so lucidly that the reader may lose sight of the complexities of the problems.

Since the book is focused on environmental policy, they open with an introduction to issues such as the sulfur oxides tax and automobile emission standards. The materials balance approach is elucidated, showing the relationships between the economy and the environment, especially the feedback loops. The book presents whatever theory and technical material is required to understand the problem, from economics to physics. It is written for an intelligent layman (which means that it could be used as an undergraduate text). The general principles of pollution control, from the use of administrative fiat to the employment of user charges are described, with detailed attention given to air and water pollution; the superiority of effluent charges is argued. Policy issues receive a great deal of attention, including the effect of environmental improvement on income redistribution, the arguments for taxes versus subsidies, and the implications of population growth. In view of the authors’ one should not be surprised that the underlying thought and analysis is complete, even when the problem is not formally analyzed.

There is much fascinating material in the book. For example, the authors show air quality indices by size of city. Suspended particulates rise from 25 for nonurban areas to 120 (micrograms per cubic meter) for cities of more than three million population. The discussion of automobile emissions is clear and accurate; few of the people working on the problem seem to understand the applicable legislative and administrative standards. The authors’ view of efficiency in allocation is pure, leading them to rail against any sort of taxes or subsidies that would distort incentives. For example, cost subsidies are condemned since they shift the burden of the externality and since they subsidize the local polluters and motivate them to pollute too much. This is the basis for their analysis and conclusion that effluent charges are superior to other means of control.

I think they have pushed their argument too far, departing from the realism of political control. A linear benefit function (with constant marginal benefits) is ideally suited to effluent charges. A non-linear benefit function (non-constant marginal benefits) requires an iterative scheme whereby a series of emission charges would be announced, the results noted, and the marginal benefits equated to marginal costs. However, an iterative process is expensive and time consuming since emission control consists of modifying production by adding a "black box" to the stack or by changing production processes. Any modification is costly and there is little flexibility in terms of emission levels. The optimal system for 25 percent control usually has no parts in common with one for 75 percent control. This means that one would have to make an accurate guess on emission charges the first time. It would take years to ascertain the new air quality, modifying a changed tax would be costly. The amount of information that would be needed to estimate the charge accurately is very great indeed. In contrast, imagine a situation where you have a rough idea of the cost of abatement and have determined that x percent abatement is worthwhile. Administrative fiat declaring that emis-
sions must be abated by x + 10 percent (to allow for cases where emission control was extraordinarily expensive and so a lesser level was allowed) might not only come to a more acceptable solution, it might do so more rapidly and at lower cost. Since I am an economist, I did say might. I would note that the engineers have good reasons for distrustling the emission charge system and it does not behoove economists to be cavalier in our assertions of its superiority. This book sets out the argument and thus opens the possibility of debate.

Environmental economics has come a long way. Both the professional economist and the interested undergraduate would gain much from this slim book. It is a model of how a book can be written for a lay audience and still present the crux of the issues and references to the deeper treatments.

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800 Manpower; Labor Population

810 Manpower Training and Allocation, Labor Force and Supply


Although all three books treat the disturbingly persistent problem of underemployment in our Metropolitan areas, particularly of minority groups and of the urban poor in general, they are distinctive in approach and complementary rather than competitive with one another. Each represents a valuable contribution to the fund of knowledge currently being developed essential to understanding and coping with unemployment in the urban core.

In a sense, David Gordon’s book is “an economic primer” on the “Theories of Poverty and Underemployment” since he summarizes and compares critically existing theories but sets forth no “new” doctrine or theory of his own. This is not, however, to be construed as a criticism or weakness of the book. Mr. Gordon’s presentation is well written, carefully researched and well thought out. The approaches of “followers,” and “proponents” of orthodox economic theory, dual labor market theory, and radical economic theory in the examination and evaluation of poverty and underemployment are by and large—despite the author’s expressed preference and exuberant adherence to radical economic theory—clearly and fairly summarized and compared. The difficulties in finding “a common denominator” to compare and critically evaluate the theories are professionally and challengingly set forth. At no point are value judgments hidden and the reader, whose exposure to the basic literature in the field is limited, will find David Gordon’s book a reliable and stimulating overview of the three basic theories of poverty and underemployment.

The Friedlander and Harrison books are supportive of the dual labor market theory of poverty and unemployment in the urban core. The theory of primary and secondary labor markets in the evaluation of urban ghetto employment is perhaps the most widely accepted of the three theories among economists; certainly it is currently the most popular. Yet, there are some serious reservations as to its accuracy and universality.

Students of urban labor markets have been discovering in their micro-analytical studies a multiplicity of markets with strong independence of one another and, in any case, stubbornly resistant to individual efforts at movement from one market to the other. It might be asked, then, why stop at a theory of dual labor markets? Why not a multi-market theory of